2025 PDC SUMMIT
March 9-12 Atlanta

Balanced Insights: Better Decision Making

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Evaluation & CECs

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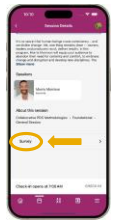

Balanced Insights: Better Decision Making

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Balanced Insights: Better Decision Making

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***Question #1**:*

Why do finishes (textiles / surfaces) failures happen and what are we doing about it?

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Coated Fabric Failures everywhere!

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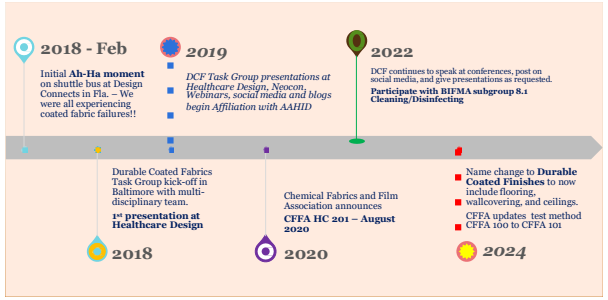
Durable Coated Finishes Task Group Timeline



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Design Without Compromise:

Certified Healthcare Materials That Guarantee Both Quality and Style

CERTIFIED

PROPERTY	TEST METHOD	FABRIC BACKING OR SUBSTRATE: KNITS	NON-WOVENS	WOVENS
Abrasion: (Wyzenbeek) Healthcare /High Traffic[1]	CFFA 1a #10 Duck	100,000 Cycles	100,000 Cycles	100,000 Cycles
Healthcare/ Normal Traffic[2]		50,000 Cycles	50,000 Cycles	50,000 Cycles
Accelerated Exposure to Disinfectants*	CFFA 101	Slight Change (4)	Slight Change (4)	Slight Change (4)
Accelerated Light Aging (indoor)[3]	CFFA 3	Slight Change (4)	Slight Change (4)	Slight Change (4)
Adhesion	CFFA 7	3.0 lbs.	3.0 lbs.	3.0 lbs.
Blocking	CFFA 4	Knits: Slight Adhesion (2)	Knits: Slight Adhesion (2)	Knits: Slight Adhesion (2)
Cold Crack*	CFFA 6a	No Cracking	No Cracking	No Cracking
Cracking: Dry & Wet	CFFA 7	Excellent (4)	Excellent (4)	Excellent (4)
Denim Stain Resistance	CFFA 7G	Slight (3)	Slight (3)	Slight (3)
Resistance (CAL117-2013)	CFFA 9	Pass	Pass	Pass
Flex	CFFA 10	25,000 Cycles No Cracking/ Crazing	25,000 Cycles No Cracking/ Crazing	25,000 Cycles No Cracking/ Crazing
Hydrolytic Stability, PU	CFFA 11G	10 weeks	10 weeks	10 weeks
Seam Strength	CFFA 14	30 x 25 lbs.	35 x 35 lbs.	25 x 25 lbs.
Stain Resistance*	CFFA 14G	No Stain (4)	No Stain (4)	No Stain (4)
Tear Strength, Tongue Trap	CFFA 14D	4 x 4 lbs.	9 x 9	4 x 4 lbs.
Tensile Properties*	CFFA 18	50 x 50 lbs.	15 x 15 lbs.	50 x 50 lbs.
Yellowing*	CFFA 19	8%	8%	8%

https://www.cffaperformanceproducts.org/healthcare.asp

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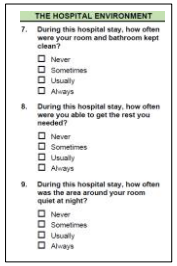
HCAHPS 2025/ Patient Satisfaction Surveys

Patient Experience With Facility-Based Care

- Emergency Department
- Hospital
  - Adult Hospital (HCAHPS)*
  - Child Hospital
- In-Center Hemodialysis*
- Nursing Home
- Outpatient and Ambulatory Surgery*



THE HOSPITAL ENVIRONMENT

7. During this hospital stay, how often were your room and bathroom kept clean?
   - ☐ Never
   - ☐ Sometimes
   - ☐ Usually
   - ☐ Always
8. During this hospital stay, how often were you able to get the rest you needed?
   - ☐ Never
   - ☐ Sometimes
   - ☐ Usually
   - ☐ Always
9. During this hospital stay, how often was the area around your room quiet at night?
   - ☐ Never
   - ☐ Sometimes
   - ☐ Usually
   - ☐ Always

•Facility environment:

•How clean and well-maintained was the facility?

•How comfortable were you in the waiting room?

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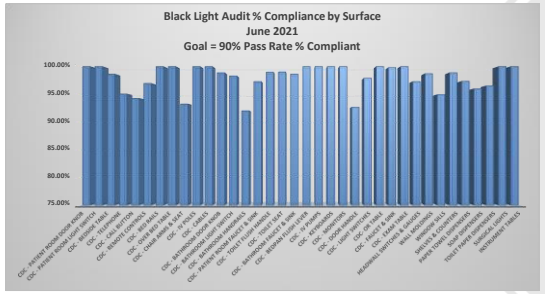
Room Inspections / CDC Compliance Verification



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***Question #2**:*

How are cleaning and disinfecting practices impacting healthcare surfaces?

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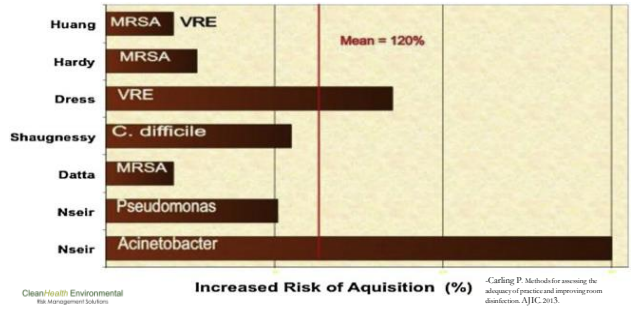
Increased Risk from Prior Room Occupant



CleanHealth Environmental Risk Management Solutions

-Carling P. Methods for assessing the adequacy of practice and improving room disinfection. AJIC. 2013.

HIERARCHY OF SUSCEPTIBILITY

CleanHealth Environmental Risk Management Solutions

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All Chemicals are NOT Equal

Safer Choice Options

hydrogen peroxide**
citric acid
lactic acid
ethyl alcohol (also called ethanol or just alcohol)
isopropyl alcohol
peroxyacetic acid **
hypochlorous acid

***The combination of hydrogen peroxide and peroxyacetic acid is a designated AOEC asthmagen, so avoid products that contain both.*

CleanHealth Environmental Risk Management Solutions

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Cleaning and Disinfecting Practices

- US EPA Pollution Prevention Grant through Maryland Department of the Environment (MDE)
- Safer Choice selections
- Five facilities / communities participating
- Policies and procedures
- Training programs and continuous improvement
- Once completed – materials to be open source.

Photo: With permission from Live Together, Inc and Citizens Care.

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Question #3:

Emerging discussion around UVC and what are the unintended consequences with the use of UVC?

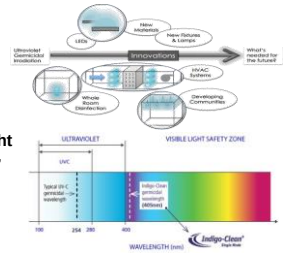
UVC – Emerging Discussion

Ultraviolet Germicidal Irradiation

- Short wave, high energy ultraviolet C (UVC) light destroys microorganism's DNA
- Applications for water, air and surfaces

High-Intensity Narrow-Spectrum (HINS) Light

- 405 nm, sometimes referred to as "Near UV," although not in the UV spectrum.
- Provides continuous disinfection of air and exposed surfaces in occupied spaces



Recent Registrations

EPA

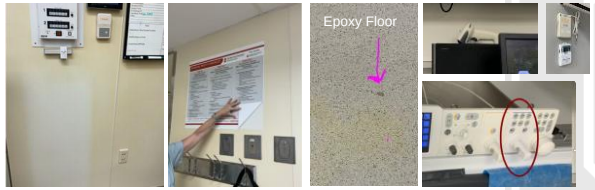
- **Guidance for Products Including or Adding Disinfectant Efficacy Claims for Use on Soft Surface Textiles in Non-Residential Settings** (2023)
- **Residual Efficacy Claims -** Addition of residual (i.e., extended or long-lasting) efficacy claims (2019)

FDA

- **510(k): Whole Room Microbial Reduction Device** (2024)

O.R. Materials Degradation Discovery 2021

Yellowing & degradation of new interior finish materials, O.R. equipment and devices



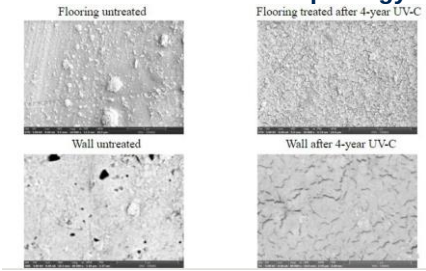
Recently renovated Operating Rooms, (noticeable within 8 months to 2 years)

UV-C Disinfecting Light Exposure – 3 months

Visible/Measurable Color Change:

- *Measurable difference in rigid plastic wall panel*
- No measurable difference in flooring and tubing

UV-C Disinfecting Light Exposure – SEM results of surface morphology after 48 months



Impact of OR Material Failures

HARD COSTS to renovate one OR with like materials: ***$310,000****

- hard construction and ICRA costs = $300,000
- moves/clean storage/logistics of all ME = $10,000

SHUT DOWN LOSS OF REVENUE: - *$1,050,000**

- Requires shut down of adjacent ORs to mitigate vibration and sound, ICRA
- Vibration/sound/Impact to departments *on the floors below*
- **only after-hours work = 14 days construction**
- 3 ORs shut down x an average of $25K per day, evening work

LOSS OF PATIENT CARE DAYS: 42

- *may have procedures cancelled due to the delay*

**2023 costs; *Construction costs would likely be much higher in order to invest in UV-C resistant wall materials, such as stainless steel, laminated glass, or exterior grade solid surface materials to achieve a longer life-cycle.*

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Question #4:

What tests are currently used to evaluate textile / surface materials for healthcare environments?

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Industry Standards

BIFMA - Current standard HCF 8.1-2017 "Healthcare Furniture Design Guidelines for Cleanability"

- **Draft HCF X8.1** "Furniture Surfaces: Design and Durability for Cleaning, Sanitizing, and Disinfecting Standard" in committee working sessions. *Pending revisions, currently on hold"*

ASTM D1308 - *modified using common Healthcare disinfecting chemicals*

- Evaluating Hard Materials Surfaces Including Coated and Uncoated Solid Wood, Veneer, Plastics, Metal, Laminate (HPL, LPL, TFL, Thermofoil), and Others Surfaces for their Resistance to Cleaners, Sanitizers, and Disinfectants

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Highlights of CFFA-HC-201C

- **CFFA 70**: Denim Stain Resistance, also known as “reverse crocking”.
- **CFFA 142**: Stain resistance in the healthcare environment; 12 different common stains, including ink, lotion, oils, lipstick and bodily fluids.
- **CFFA 101**: Accelerated Exposure to disinfectants.
- **Pass All 16 Minimum Performance Tests** (some have subtests).

The CFFA-Healthcare-201 has been reprinted with permission of the Chemical Fabrics and Film Association.

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Disinfectant Exposure Test - Results

Disinfectant	Fabric 1 Vinyl w/Brand A Topcoat	Fabric 2 Vinyl w/UV & Acrylic Topcoat	Fabric 3 Thermoplastic Elastomer	Fabric 4 Silicone, no topcoat	Fabric 5 Polyurethane	Fabric 6 Treated Leather	Fabric 7 Vinyl w/Brand B Topcoat	Fabric 8 100% Nylon Matrix	Fabric 9 Polycarbonate w/Brand C Topcoat	Fabric 10 Silicone w/Brand C Topcoat
A In-house Bleach	Rating: 3.0	Rating: 3.0	Rating: 1.7	Rating: 3.3	Rating: 1.0	Rating: 2.0	Rating: 1.3	Rating: 1.0	Rating: 2.0	Rating: 4.0
B Oxivir TB: Hydrogen Peroxide (0.5%)	Rating: 2.0	Rating: 3.0	Rating: 2.0	Rating: 3.0	Rating: 1.0	Rating: 2.7	Rating: 3.0	Rating: 1.3	Rating: 2.0	Rating: 3.0
C Oxycide: Hydrogen Peroxide + Peroxyacetic Acid	Rating: 2.0	Rating: 3.0	Rating: 2.0	Rating: 3.0	Rating: 1.3	Rating: 2.3	Rating: 2.3	Rating: 2.3	Rating: 2.0	Rating: 3.0
D Quaternary- Virex II 256	Rating: 4.0	Rating: 4.0	Rating: 2.0	Rating: 4.0	Rating: 1.3	Rating: 3.0	Rating: 4.0	Rating: 1.3	Rating: 1.7	Rating: 4.0
E JF2 Glance: Non-ammoniated	Rating: 4.0	Rating: 4.0	Rating: 2.0	Rating: 2.7	Rating: 1.0	Rating: 3.7	Rating: 4.0	Rating: 1.0	Rating: 2.3	Rating: 3.0
F JF3 Stride Citrus Neutral Cleaner	Rating: 3.3	Rating: 4.0	Rating: 2.0	Rating: 2.7	Rating: 1.0	Rating: 4.0	Rating: 4.0	Rating: 3.3	Rating: 2.7	Rating: 2.3
G Hand Sanitizer- 70% Isopropanol	Rating: 4.0	Rating: 3.3	Rating: 2.0	Rating: 2.0	Rating: 1.0	Rating: 3.7	Rating: 4.0	Rating: 1.3	Rating: 3.0	Rating: 3.0

4 Excellent 3 Good 2 Poor 1 Severe Effect

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Stain Resistance Test – Results & Take-Aways

Patient Transferrable Stains	Scores:
Super Lustrous Lipstick- Love That Red	100% fabrics stains present – no 4s
Baby Oil	75% of fabrics stains present, all at 2 or 3, few 4s
Daily Moisture Dry Skin Moisturizer	60% of fabrics stains present; all at 2 or 3, few 4s
Acetone Nail Polish Remover	30% fabrics types stains present; 3 or 4
Non-Acetone Polish Remover	30% fabric types stains present; 2, 3, 4
Broad-Spectrum Sunscreen SPF 50 (Oxybenzone 5%, Avobenzone 3%, Octocrylene 4%, Homosalate10%, Octisalate 5%)	100% fabrics stains present – no 4s; all fabric types scored 1-2, very few 3s
Skin Sunscreen Lotion with Broad Spectrum SPF 60+(Zinc oxide 4.7%, Titanium dioxide 4.9%)	100% fabrics stains present – no 4s; 1 fabric type scored 1, most scored 2
Jamaican black castor oil strengthen restore leave-in conditioner	100% fabrics stains present – no 4s
Synthetic Body Fluids and Clinical Reagents	**Scores:**
Stomach Acid	40% fabrics stains present, all at 3 & 4
Human Sweat	0% fabric stains present, though 50% scored 3 on degradation & appearance
Urine	0% fabric stains present, though 50% scored 3 on degradation & appearance
Viscot Mini Surgical Fine Tip Marker	100% fabrics stains present; no 4s, many 1,2s

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Question #5:

Can a surface material be both performance based and sustainable?

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Product Specification Process: Product Life Cycle

- Performance – Testing of Products
- What are the other performance and functional considerations?
  - Sustainable / Health & Wellness Requirements and OPR (Owner Project Requirements)
    - Infection Control and Prevention
    - Global Warming Potential (Embodied Carbon)
    - Indoor Environmental Quality
      - Operationally – Green Cleaning and Disinfection
      - IAQ: VOCs – Product Emissions / On-going
      - Acoustics / Thermal / Lighting Comfort (e.g., LRV)
      - Visual Access and Sight Lines

Photo credit: Shaw: LVT / Wall Protection / Mattress Covers / Handrails: *UMC Hospital Emergency Room Application*

It is essential to move beyond a single attribute comparison for final product selection!

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Owner Project Requirements (OPR)

Project Type: Hospital Emergency Room

Building Service Life: Exterior: 50 years
Building Service Life: Systems: 20 years – 2 ½ Cycle Renovations based on System Service Life
Building Service Life: Interior: 12 years – 4+ Cycle Renovations based on Product Service Life

Outcome: Improve ED CAHPS Scores (pre- and post-COVID-19 pandemic)
Outcome: Mitigate / Reduce Infection Risk
Outcome: Improve Patient and Family Satisfaction
Outcome: Improve Care Staff Retention
Outcome: Improve Staff Satisfaction
Outcome: Reduction of Fall Risk

Resource: Facility Guidelines Institute: www.fgiguidelines.org: Hospital – OPR and Safety Risk Assessment
Resource: Centers for Medicare and Medicaid Services: https://www.cms.gov/data-research/research/consumer-assessment-healthcare-providers-systems/emergency-department-cahps (accessed 2/14/2025)

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Design Firm Recommendations

Hospital Emergency Room – existing site constraints determine orientation and location of building addition

LEED® v5* Silver Certification

Fitwel® Two Stars Certified

Operational cost savings is key to the Client

Environmental expectations: Energy & Water Savings

Material Selection: Product Service Life, Global Warming Potential, & IEQ

Health & Wellness: Acoustic and Lighting Comfort, Safety, Quality, & Control, Water Access & Quality

*Project Registration as of early 2025.

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Product Selection Process

Hospital Emergency Room – existing site constraints dictate orientation and location of building

LEED® v5* Silver Certification – Material / IEQ Credits

Fitwel® Two Stars Certified – Material / IEQ Criteria

Material Selection: Primary: Product Service Life – Durability, Performance

Secondary: Global Warming Potential, Environmental Product Declaration

Health & Wellness: Primary: Safety – Infection Control & Prevention, Cleaning, Sanitizing & Disinfection, Indoor Air Quality

Secondary: Acoustic and Lighting Comfort, Water Access & Quality, Thermal Control

*Project Registration as of early 2025.

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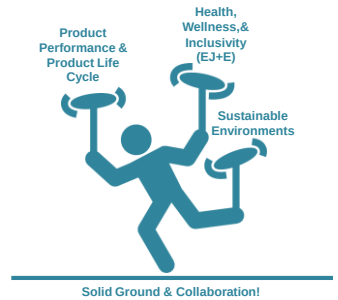
Balancing Criteria

- There are **trade-offs** – realizing that some take precedent and priority over others
- **Product Service Life** to be identified and tied to Use Phase – based upon **performance** including maintenance and durability
- **Infection Control & Prevention –** must be considered for **all care populations, materials & settings!**



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Resources

- CFFA HC 201 - https://www.cffaperformanceproducts.org/healthcare.asp
- AAHID Website - https://aahid.org/resources/durable-coated-fabrics/
- Interior & Sources Articles -
  - Time for Upholstered Fabric Performance in Healthcare
  - Deep Dive
  - Specifying Healthcare Materials
  - Cleanable Surfaces
- CFFA CEU - "Coated Fabric Construction and Testing"
- Why Vinyl? CEU - "Vinyl: The High-Performing Choice for Healthcare"
- DCF Presentations - https://aahid.org/resources/durable-coated-fabrics/

Questions?

Thank you for attending!

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